Floating Solar

The „White Knight“ for the Mega Solar Industry
Explosive Growth of Solar Industry

Figure 1.1 Annual U.S. Solar PV Installations, 2000-2014
Clear Felling
Solar Parks on Fertile Land Are New Adversary of India’s Farmers
“There’s plenty of arid land available, but they are far away from substations and costs for evacuating electricity are much higher because of transmission losses.” (CEO, MBH Power, which bought agricultural land for a Mega Solar power station in Gujarat.)

“Farmland is favored even though prices can be as high as 10 times those of wasteland parcels.”

“Integrating solar plants with the grid and the stability of the grid are important issues in far-flung areas. If it makes more sense to put up panels on farmland, companies will choose to buy farmland.”
California – Land speculators see silver lining in solar projects

- Solar companies and land speculators are gobbling up scarce private land in the California deserts, driving prices up 10- to 20-fold, or even higher.
- Desolate acreage that a few years ago might have sold for less than $500 an acre can now fetch as much as $20,000 an acre or more.
Solar Act of 2012

- Ended large scale solar installations on NJ open space and farmland.
- Encouraged development on closed Landfills and Brownfields.

(Engineering and site prep costs $$$)

What’s left are large rooftops and FLOATING SOLAR!
Tengeh Reservoir - Singapore
Power Plant Cooling Ponds – India
Cooling Ponds (8.75 MW)
Balbina Dam – Brazil

Clean Technica

Brazil Announces Huge 350 MW Floating Solar Power Plant

April 6th, 2015 by Anand Upadhyay
Pantabangan Dam
Main Advantages

- Use of surfaces that serve no other purpose.
- No trees have to be cut, no civil engineering work is needed.
- 2\textsuperscript{nd} generation does not need racks for mounting anymore.
- Water proximity lets panels operate cooler.
Main Advantages

- Evaporation reduction, which can be up to 3m per annum (California!)
- The development of green algae is also reduced.
- No significant environmental impact.
- Theft is much more difficult and risky.
- Highest soft cost reduction potential in the industry.
First Solutions

Land-based solar

...combined with a float
Created the first generation
Second Generation

- 1. MAIN FLOAT SUPPORTING PV MODULE
- 2. SECONDARY FLOAT
- 3. TAB CONNECTION
- 4. GASKET TO MOUNT PV MODULE
- 5. STANDARD 60 CELLS PV MODULE
Second Generation
Generation 2.5
AGC Light Joule Panels
(Image)
Use of Flexible Panels

- No racks necessary
- Installation on salt water possible
- Yield on yearly average higher than silicon panels
2 Workers – 26 panels per hour

JUST BOND MODULES TO MEMBRANE
Fourth Generation

- Total System Integration
- 1 MWp under $1 million if mass produced
Fourth Generation

(Image)
Own Plans

- Setting up a holding company in Singapore
- IP provision and basic engineering
- Partnering with EPC and developers in various markets
Thank you!